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ABSTRACT

The Air Force outdoor recreation program evolved from the Army "rest and recreation" areas set up during World War II. During the last decade, financial pressures and eroding support for recreation programs forced a reexamination of the objectives of such programs. Starting with the premise that the Air Force was the main customer and that recreation should address elements of mission support, a blue ribbon panel identified four areas to be addressed by recreation programs: fitness, unit and community cohesion, family well-being, and quality of life. Program objectives, indicators of success, and benefits to the Air Force were then formulated for each area. Strategies for developing programs in each of these areas are outlined, including specifying the particular program objective, aiming marketing strategies at the target market segment, and planning and implementing program activities. Hypothetical examples show how the Air Force's objective-based approach provides a planning framework useful to any outdoor recreation provider. Includes short descriptions of eight existing outdoor recreation programs at Air Force bases, a list of principles and practices for innovative outdoor recreational games, and detailed descriptions of six outdoor games and activities for children and adolescents. (SV)

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ED 404 076

Why is Outdoor Recreation Worth $30 Million to the Air Force?

Phillip Heeg
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Randolph AFB Texas USA

Truth in Reporting Disclaimer—The truth behind the catchy title is that the United States Air Force does not spend $30 million in taxpayer's money on outdoor recreation. More than $22 million of the $30 million dollars the Air Force spent on outdoor recreation in fiscal year (FY) 1991 came out of the pockets of our customers. If we were a municipal or university program, we would receive only 26% of our operating budget from the city or university. The tax dollars we do receive goes for salaries, utilities, facility maintenance, and office supplies. Excluding that 26%, the outdoor recreation program generates $1.06 in operating income for every $1.00 of operating expense.

Introduction

The Air Force outdoor recreation program evolved from the Army "rest and recreation" areas set up after World War II. In the United States, off base recreation areas and campgrounds were established to provide wholesome opportunities for off-duty recreation. Most of the areas were located near water to provide boating and fishing. Like many early recreation operations, the focus was on facilities not programs. Starting in the early 1980s some Air Force bases began to organize outdoor recreation activities such as canoeing and ski trips. It wasn't long before other bases, recognizing the market demand, established outdoor recreation programs. When local natural resources and properly qualified staff were available, the programs included outdoor adventure activities like mountaineering, whitewater rafting, and backcountry hiking or skiing.

Outdoor recreation is often the most diverse recreation program found on an Air Force base. While each program is different, outdoor recreation has, by regulation, responsibility for the following sub-elements: parks, playgrounds and picnic areas; outdoor recreation and adventure activities; swimming pools, beaches and waterfronts; equipment checkout and rental; skeet, trap, and archery

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ranges; on-and off base recreation areas; campgrounds and recreational lodging; marinas; riding stables; and ski areas. Given the range of programs and facilities, it should be no surprise that Air Force outdoor recreation is a big operation. During FY91, about 1500 employees managed operations at more than 100 installations in over a dozen countries. Sales were $4.6 million and activity revenue topped $15.5 million.

During the last decade, a variety of factors placed financial pressure on all Air Force recreation programs. As these pressures increased and recreation directors became better at financial management, we began to lose sight of our real purpose. We cut "unprofitable" programs, raised fees, and used the bottom line as our yardstick for success. We selected market segments based on ability and willingness to pay. While these are good business practices, they created changes which concerned many recreation professionals and senior Air Force leadership.

In response to these changes, and eroding support for recreation programs at Congressional and Department of Defense (DOD) levels, the Air Force convened a Blue Ribbon Panel to evaluate the need for recreation programs and suggest future policy directions. The panel reviewed more than $10 million worth of studies and research related to military reaction and examined trends shaping the Air Force of the 21st century. The work of the panel was refined and presented as "The White Paper on Air Force Recreation", signed out by the Air Force Chief of Staff in September 1990. Basic to the White Paper were two tenets: 1) The Air Force is our primary beneficiary/customer and 2) Our programs must address the specific institutional needs of the Air Force. While we had always said we supported the Air Forces' national defense mission, our current program mix did not support that claim. If we were to remain part of the Air Force, we would have to change our ways of thinking and running programs.

The first challenge to reorienting our recreation programs was to identify our most important customers. We were doing a good job of providing programs to individual active duty personnel, retirees and DOD civilians. If they wanted a program, and would pay for it, chances are we would offer it. Unfortunately, we were not providing programs which addressed the institutional needs of the Air Force. Specifically, we were not perceived by commanders as helping them perform their job. Commanders are responsible for ensuring their personnel are prepared at all times to carry out their assigned war fighting tasks. To a commander, any part of the organization which does not help him or her meet the mission requirement is a waste of precious resources. In the minds of some commanders, recreation programs were a waste of personnel, facilities, and money. We had taken our eyes off our real boss.

The Blue Ribbon Panel identified four specific areas which should be addressed through recreation programs. These include fitness, unit and community cohesion, family well-being, and quality of life. Fitness activities promote cardio-respiratory efficiency, muscular strength, and flexibility/agility. Unit cohesion building programs enhance work group interaction, and increase the desire and ability of members to function as a team. Community cohesion is enhanced by including active duty personnel, families, and civilians in community-wide activities designed to foster a sense of belonging to the local Air Force community. Family well-being activities enhance family interaction, and strengthen the relationships between family members and assist families in reducing stress. Quality of life activities enhance the perception that the Air Force is a "Great Way of Life".

Starting with the premise that the Air Force was our most important customer and that recreation should address four distant elements of mission support, we then outlined specific objectives for our recreation programs. Along with the objectives, we established indicators of success and identified specific benefits to the Air Force. The program objectives, indicators of success and benefits to the Air Force for fitness programs were:

PROGRAM OBJECTIVES

- Foster physical fitness and mental well being
- Foster awareness of proper diet, nutrition, and stress and weight management
- Increase awareness of the potential fitness value of recreation activities
- Develop awareness of mental fitness

INDICATORS OF SUCCESS

- Improved fitness levels among personnel
- Increased awareness of fitness and health in all aspects of life
- Lower incidence of negative behaviors such as smoking, alcohol consumption and drug use
- Lower stress levels, hypertension and cholesterol levels

BENEFITS THE AIR FORCE

- Improved capability of the individual to respond to work demands
- Improved responsiveness to training
- Improved readiness for combat
- Improved combat efficiency
- Reduced absenteeism and health problems

For unit and community cohesion programs, the objectives, indicators, and benefits included:

PROGRAM OBJECTIVES

- Encourage people to spend social time together in pursuit of common goals
- Enhance communication within a group
- Build interpersonal competencies
- Build skill in performing tasks cooperatively as a team
- Provide opportunities for individuals to develop leadership skills within their group
- Develop a sense of belonging within the base and local community

INDICATORS TO SUCCESS

- Vertical and horizontal cohesion among unit and community members
- Increase morale and mutual support within the Air Force community
- Increased pride in unit and community
- Increased desire and ability of members to function well together as a team

BENEFITS TO THE AIR FORCE

- Improved individual and unit job performance
- Higher morale
- More effective supervision
- Improved base - community relations
- Reduced vandalism and crime
- Reduced work stress
- Reduced absenteeism

Family well-being activities also had specific objectives, indicators, and benefits:

PROGRAM OBJECTIVES

- Encourage couples and family members to spend social time together
- Strengthen communication between marital partners
- Strengthen relationships between parents and children
- Build skills in personal and family problem solving
- Provide opportunities for family members to develop and test new roles
- Develop feelings of satisfaction with family leisure time activities

INDICATORS OF SUCCESS

- Higher Air Force satisfaction among spouses and children
- Increased support by spouses for the job and career of Air Force members
- Increased satisfaction with leisure time and recreation among Air Force families

- Lower levels of family conflict being brought to the attention of supervisors
- Fewer family problems associated with the inappropriate use of leisure time
- Increased morale among service members with families

BENEFITS TO THE AIR FORCE

- Stronger marital relationships
- Stronger parent-child relationships
- Reduced family conflict and stress
- Reduced work stress
- Improved job performance
- Better family support for the Air Force

It was quickly apparent that outdoor recreation was positioned to contribute more to mission support than any other recreation activity. The primary elements supported by outdoor recreation would be family well-being and unit cohesion. Outdoor activities would also play an important role in improving fitness and community cohesion. Not only could outdoor recreation support all of the mission support elements, it could do so through a wide variety of activities. When compared to opportunities available to the bowling or golf programs, it was clear that outdoor recreation would be called on to carry a large portion of the mission support responsibilities.

Once we establish the basic program objective, detailed planning can begin. For example, assume a commander wants to enhance her squadron's cohesiveness. Depending on the specific nature of the squadron' group dynamics, the outdoor recreation programmer may need to address leadership, trust, or cooperation issues. For the sake of example, assume there is a problem with cooperation; different members of the squadron don't pull their weight and some members can't seem to work together. Depending on the resources and capabilities of the outdoor recreation program, there are many different ways to tackle this problem. A rafting trip using paddle rafts or sessions on a challenge ropes course are obvious candidates. Knowing the desired outcomes make program planning, development, and execution much easier.

Each program requires different marketing strategies. Family well-being programs can be targeted for couples only, whole family, father-daughter, mother-daughter, mother-son, mother-daughter, and so on. The specific market segment must be established from the start. The fun part of program development is deciding which activity is best suited to the program objectives and market segment. What would work best to strengthen father-daughter relationships? A bicycle ride, canoe trip, fishing contest, or repelling program? Again, the decision is shaped by local resources and capabilities. Pricing policies must allow for different program objectives. Whole family programs must usually be low cost. Programs can offer a price break if the squadron or dorm unit handles the sign-ups or helps in some other way. The day of the week, the time of the day, and the location can all be tweaked to fit the program objectives and market segment. Programs designed to help young, single members make the transition to Air Force life away from home are particularly effective around major holidays.

Promotion is perhaps the most important part of the marketing mix and yet is often the most poorly handled. The media, copy, graphics, channel, timing should all be carefully considered. What key benefits which must be communicated to prospective customers? Are there customer safety concerns which must be allied? What general tone should the promotional materials try to convey? What is the most effective way to reach the target market? How far in advance does this particular target market need program information? To sell a program, even to willing buyers, you must do more than simply list what, where, when, and price.

Most importantly, you must communicate why the prospective customer should want to participate. If you do not answer the customers question: "What's in it for me?"; your promotional efforts will be ineffective.

To help recreation managers change their way of doing business and shift to an objectives based program approach, the Air Force developed a comprehensive Recreation and Mission Support Program Manual. We also began a formal test of the effectiveness of this new approach to recreation programming. The formal test is currently being conducted at six bases around the world and included comprehensive training for all staff members and an extensive pre and post evaluation system of interviews and surveys. Results of the test should be ready in late 1993.

Rather than wait for the test results, the outdoor recreation program embraced this approach from the beginning. The mission support approach to programming has been included in all of our training programs since 1990. We hope the early exposure to this approach will enable outdoor recreation to shoulder its important mission support role.

To help Air Force recreation personnel shift to an "objective based" approach to activity planning, we developed a program idea book listing successful activities that addresses specific mission support objectives. The book's program sections (i.e. golf, youth activities, outdoor recreation, etc.) were organized and color coded by the four mission support elements. This allows programmers to quickly identify activities that addressed a specific element. The program ideas were collected from base-level programs which had already proven successful. The outdoor recreation section, which was the largest, included 19 unit and community cohesion activities, 13 family well-being activities, 13 fitness activities, and 12 quality of life activities. Each idea sheet included a list of other agencies that might be involved, the goal or objective, a program description, and which base to contact for more information. (Sample idea sheets are included at the end of this article.)

While military recreation has some unique characteristics, our approach has direct applications to university, municipal and commercial outdoor recreation programs.

The first rule for all programs is: Never take your eyes off your boss. As we discovered, identifying the real boss is not as easy as you might think. The "boss" for a university program might be students, faculty and staff, or the university as an institution. To help identify the boss, it may help to determine why your program exists. Why should university resources be allocated to the outdoor recreation program? What is its purpose and how does that purpose relate to the university's "mission". If your program has no purpose or it doesn't relate to the university's mission, then it's clear that the university, as an institution, is not your boss. (It should also be clear that the outdoor recreation program will probably not get much support from the university when resources get tight.) The same can be said about municipal outdoor programs. Does the program's purpose relate to the Recreation and Parks Department mission? Why should the program receive municipal resources? How does it fit into the city government's overall program? For commercial operations the boss is the paying customer. Where the Air Force approach may apply is by offering ways to carve out market niches that increase market share or tap new markets.

A few examples demonstrate how an objectives based approach can be applied to other outdoor recreation providers. Using a case study approach, let's apply the Air Force approach to each type of program. The first step is to establish a guiding program objective. The university program has decided to improve unit cohesion. In this case, the members of the unit are the faculty and the staff

of a department or a small college. Poor group dynamics are not uncommon in academic units. In the municipal setting, the objective is to improve family well-being. Dysfunctional families create expensive demands on other city functions such as police and social services. The commercial program wants to distinguish its operation from competitors by offering programs which improve physical fitness. Resort operations exploited the fitness (perhaps "perception of wellness" is more accurate) craze and the spa industry was born. In each of these examples, the key is what the program will be designed to do. Once the objective is established, marketing planning begins.

Building on the examples outlined in the previous paragraph, we can examine subsequent market segment decisions. The university program started by contacting Deans or Department Heads to offer programs designed to improve faculty and staff cohesion. New Deans or Department Heads should find an opportunity to form cohesive team particularly appealing. The municipal program has chosen to target poor families or single parent families. The commercial operation is seeking people in the 35-50 year age range who are looking for less physically stressful alternatives to running or aerobics classes.

Once program objectives are established and a market segment selected, the next step is program development. Fortunately, the university program is equipped, staffed, and ideally located to provide whitewater rafting day trips. Raft trips are good ways to establish teamwork, set aside professional demeanor, and build common bonds. To keep costs low and establish leisure skills which families can use later, the municipal program is developing a kite building and flying contest. (Kite flying may seem a pretty tame outdoor recreation activity, but remember, the vast majority of people have absolutely no intention of ever hanging off a rock face by a single strand of rope. An expanded definition of outdoor recreation creates greater opportunities.) The commercial operation, located in beautiful Alberta, Canada, is planning a fitness through cross-country skiing program.

Since all of these programs are well grounded in marketing techniques, they've made some very savvy pricing, promotion and distribution decisions. The university program has selected a river that won't be too physically taxing or create anxiety among those without rafting experience. The goal is not adrenaline. Meal planning and preparation will involve the faculty and staff participants. The trip is scheduled a week prior to the department's planning sessions to map out next year's curriculum.

The municipal program has wisely chosen to take advantage of its park areas. They've worked with local crafts shops to help sponsor the event by donating kite making materials. The participants must bring their own string. This presents a minimal financial burden but helps establish commitment and builds anticipation. They are using local churches, community groups, and social service agencies to get the promotional message to their target market. The commercial operation, taking advantage of New Year's Resolutions, will launch their program in early January. It includes stretching and warm-up training, diet and nutrition information and a weekly technique clinic. As an incentive, the program offers a rent-to-own ski equipment package with additional discounts for pounds lost. For customers who already own equipment, the weight loss discount can be applied to new equipment or other outdoor recreation program fees.

While these are hypothetical examples, it's clear that the Air Force's objective based approach provides a planning framework useful to any outdoor recreation provider. It encourages variations of one activity to provide distinctly different outcomes. This helps small programs to produce a wider range of customer benefits. For programs which rely on some form of organizational subsidy, it can be used to strengthen political and resource support.

It can be used to reach new markets or increase market share by positioning an operation as different from the competition. Finally, and most important of all, it elevates the perceived value and importance of outdoor recreation activities. Without a clear understanding of the benefits of outdoor recreation, our efforts are discounted and the activities considered trivial. Outdoor recreation is important and has a great value. Our job as outdoor recreation professionals is to ensure our programs provide identifiable benefits to the customer. Failure to do so will both cheat our customers and weaken

our profession.

The author wishes to acknowledge the following people for their leadership and hard work in developing the Mission Support initiative for Air Force recreation programs.

Without their persistent efforts, the Air Force would not be attempting this important cultural change.

Mr Donald Carpenter, Kadena AB Japan, formerly HQ AFMWRSA
Ms Linda Edwards, HQ AFMWRSA/MWPR
Dr Dennis Orthner, University of North Carolina
Mr Jerry Croan, Caliber Associates
Dr Jay Mancini, Virginia Polytechnic Institute and State University
Ms Ann Nelson, Caliber Associates

OUTDOOR RECREATION
FAMILY WELL BEING

Program:	INFLATABLE KAYAKING FOR COUPLES	OTHER AGENCY INVOLVEMENT	MARKETING

Program Goals To provide relaxation and an escape for couples in an environment that will enhance and foster cooperartion and community skills.

This program is ideally suited to couples building and strengthening relationships. The inflatable kayaks are two person boats and require paddlers communicate well in order to steer and navigate. Day trips or overnighters are easily run. Transportation and food are both planned and provided. Shuttle arrangements must be made to return the paddlers from the take-out to the put-in site. In running the river, the trip leader becomes the lead boat and may lead from a raft, a hard shell kayak or another inflatable kayak. The leader chooses the best route through the rapids and the participants follow single file. Having a raft along is a good support boat in that it can easily carry first-aid and river rescue equipment, lunches and water. The trip leader should choose a river and pace that match the participants' skill level. The itinerary should be planned to allow ample time for a relaxing atmosphere conducive to free communication and exchange. Appropriate safety briefings prior to putting on the river are a must.

Fairchild AFB WA-DSN: 657-5104
COM: 509 247-510

OUTDOOR RECREATION
FAMILY WELL BEING

Program:	CAMPING MADE EASY	OTHER AGENCY INVOLVEMENT	YOUTH ACTIVITIES TOURS AND RECREATION

Program Goal To promote family involvement, family unity, and relaxed social interaction.

Outdoor Recreation has a camping program that many families are looking for. Camping Made Easy provides opportunities for families to enjoy some of the National Parks in our local area, but without all the preparation headaches of a family vacation. Outdoor Recreation provides the equipment (tents, sleeping bags, air mattresses, lanterns, stoves, water jugs, food service and preparation items, barbecue items, and coolers). Tent set up and tear down is done by staff and volunteers. Breakfast is also provided and cooked by staff and volunteers.

Nellis AFB NV - DSN: 682-8967
COM 702-652-8967

OUTDOOR RECREATION
UNITY AND COMMUNITY COHESION

Program:	FISH OR WILDLIFE HABITAT IMPROVEMENT PROJECTS	OTHER AGENCY INVOLVEMENT:	CE, STATE NATURAL RESOURCE AGENCY
Program Goal	To enhance the base natural resources and increase awareness of environmental issues.		

While each base will have different needs, there is bound to be some portion of the base which would benefit from habitat improvement. K.I. Sawyer constructed a spawning riffle in a base stream to improve the habitat for brook trout. Rod and gun clubs, youth, scouting or school groups are usually interested in helping with these types of projects. CE is responsible for resource management on the base and habitat modifications may also require state agency involvement or expertise.

K.I. Sawyer MI - DSN: 472-2068
COM: 906 346-2068

OUTDOOR RECREATION
UNITY AND COMMUNITY COHESION

Program:	WING SKI DAY	OTHER AGENCY INVOLVEMENT	RECREATION SUPPLY, RECREATION PUBLIC AFFAIRS,
Program Goal	To encourage people of all ages to discover the joy of winter recreation for a very reasonable cost.		

Reduced lift, rental and lesson rates on a week day (in conjunction with a wing down day), free transportation. Local ski area is contracted for all prices. The program has become an annual event. In 1990 we agreed to guarantee the ski area 200 participants and ended up with over 750. Our goal was to offer prices far below the normal rates, encouraging those who had never skied "no excuse not to give it a try". Over 100 received beginning instruction. In additional to downhill ski activities, the OAP staff prepared cross country trails and provided instruction and patrol of the trails. Live music was a nice touch which was added in 1991. Transportation provided buses and drivers. Wing Ski Day was an overwhelming success. The 1991 program was severely impacted by Desert Shield/Storm though we easily met the minimums. While many military installations are not located geographically in ski regions, the concept may be useful for other activities.

Mountain Home AFB ID
DSN 857-6333 COM 208-828 -6333

OUTDOOR RECREATION
FITNESS

Program:	WINTER (GUTS) TRIATHLON	OTHER AGENCY INVOLVEMENT	FITNESS CENTER RECREATION CENTER, LOCAL SKI RESORT

Program Goal To enhance unit and community cohesion

The Guts Triathlon consists of 5 miles cross country skiing, 10 miles running, 1 mile snowshoeing up/ down the ski resort. The triathlon is held in conjunction with the local winter festival as one of the events held during this time. The race is publicized at sports shops, newspapers, radio advertisement, wing TV, daily bulletin, and briefings during the 1st sergeant's meetings. The Commander's Cup was introduced in February 1991 as an incentive to promote more military involvement. A Commander's Cup trophy was awarded to the squadron with the top winner on the military side. Racers meet at the golf course, which during the winter months is groomed for cross country skiing. The route is groomed to an off-base area in which the athletes change from cross country skiing into their running shoes. They run 10 miles down the country road to the ski resort and at this point put on their snow shoes and hike up the mountain and back in a 1-mile snow shoe race. There are two age categories: under 40 and over 40 for both women and men. Equipment is transported to each changeover area by MWR personnel, and is ready for each athlete as they change over to the next part of the event. Awards are presented at the ski resort. MWR members are groomers, mark and bag all equipment, have aid stations at each transitional spot, have a vehicle following the last athlete and work with the city officials to ensure all safety aspects are covered. Great MWR teamwork. Super exchange program with our military and the civilian community. Age of our athletes ranged from 18 years to 64. Teams are also allowed to compete.

OUTDOOR PROGRAM
QUALITY OF LIFE

Program:	CANADIAN FISHING TRIP	OTHER AGENCY INVOLVEMENT	CANADIAN PARK SERVICE

Program Goal To integrate people into groups in which they can identify, improve quality of life and develop friendships.

Schedule three 1-week fishing trips in June. Sign-ups for the trip are taken the first of April. Pre-trip meetings are held the first week in May to allow trip participants at least three weeks to obtain the items on the checklist. Checklist and fishing regulations are handed out at the pre-trip meetings. Depart on Sunday morning and return the following Saturday. Fish for Northern Pike and Walleye's. We take videos of the trips and use those for marketing. In the Equipment Checkout Center, we show the videos periodically throughout the day. A retired military volunteer is used to cook all the meals on the trip. This works out well as it frees the trip leader up for other tasks. This has to be one of the most popular outings offered and each week is usually filled.

OUTDOOR RECREATION
FITNESS

Program:	HEALTH & WELLNESS WITH THE OUTDOORS	OTHER AGENCY INVOLVEMENT	AMERICAN HEART ASSOCIATION

Program Goal: To promote health benefits of outdoor recreation programs.

Health & Wellness and outdoor recreation flyers, brochures, pamphlets and sign up sheets were set up at the commissary with a display table depicting health & wellness brochures from the American Heart Association such as healthy nibblers (ideal for hiking, backpacking, and beach outings), running, walking, biking, swimming, (then we had sign up sheets for our programs that offered these fitness events). Vendors from the commissary provided samplers of the healthy nibblers. This was an ideal way to introduce outdoor programs to the customer who normally would not have visited our center because many people think that outdoor recreation is only fishing and camping. We were also able to introduce our family events, nature tours, geology workshops, high adventure programs, and this was also an ideal time for the customer to request programs that they would participate in if we had them. We had a free drawing for one of our events (spelunking, which many customers have not experienced). It was an informative, educational outdoor health and fitness awareness day. Since we were set up at the commissary on payday, we had the opportunity to pass this information on to many of our potential customers. Any activity can set their information section at the commissary to promote their programs.

K.I Sawyer AFB MI - DSN: 472-206
COM: 9066-2068

OUTDOOR RECREATION
QUALITY OF LIFE

Program:	WEEKEND BICYCLE TRIP	OTHER AGENCY INVOLVEMENT	MARKETING

Program Goal To provide an easy activity that encourages socialization and physical activity.

This trip was aimed at the average rider and people who did minimal bicycling. Customers provided their own bicycles and the outdoor recreation (ODR) program loaded the bikes on the van for transport to the starting area. The route along the scenic Masel River was planned for leisurely cycling with planned stops for regrouping and meals. A "sag" wagon was provided for riders whose energy or bicycles gave out. The tents and camp was set up by the ORD staff prior to the rider's arrival at the campground.

Bitburg AB GE - DSN: 453-7781
COM: 06561-61-7781

INNOVATIVE OUTDOOR RECREATIONAL GAMES PRINCIPLES AND PRACTICES

"Every game ever invented by man consists in making the rules harder for the fun of it."

—John Ciardi

1. NEED FOR INNOVATIVE GAMES

A. Excellent way to "Share the Experience" and to Enhance the Experience

- Share the joy of movement
- Share the opportunity to laugh
- Celebrate the moment
- Relate with the outdoor world on new and creative level
- No formal equipment usually needed, improvise with nature
- Can be cooperative or competitive
- Enhances the non-traditional setting
- Enhances the unique experiences
- Enhances the challenge risk

B. Use games for group building

- Get Acquainted
- Build Trust
- Encourage Cooperation
- Build Group Cohesion
- Improve Group Morale

C. A special focus group may use it for specific purposes

- Develop Communication Skills
- Work on Problem Solving Techniques
- Develop Critical Thinking Skills

- Teach Environmental Education Experientially — Lichtman
- Entertainment - FUN FUN FUN — Keck, Klingman

HIT THE DECK

Brief Description: This game provides an enjoyable way in which students can develop cardio-respiratory endurance, speed and agility, yet not even realize that these are the underlying objects of the activity.

Grade Level: K - 3.
Equipment: None.
Playing Area: Any large, open space.

Players: As few as 10 or as many as 50 players can participate at once. The number which can be involved at one time is dictated more by the size of the playing area than the nature of the game.

Game: The teacher sets the following scenario: This is a space ship and it is important to move quickly to certain areas on the ship when you are instructed to do so. The leader then points out the following areas which label key boundaries of the playing surface.

Fore:	Front of Ship	Starboard:	Right Side of Ship
Aft:	Back of Ship	Port:	Left Side of Ship
Bow:	Same as Fore	Mid Ship:	Middle of Ship
Stern:	Same as Alf		
Hit the Deck:	Fall on the Floor		
Aliens Overhead:	Shoot Down imaginary flying saucers.		

Once the players can remember the words that depict at least where the back, front, left, right, and middle of the ship are located, the game can begin. The commands "Hit the Deck" and "Aliens Overhead" will cause confusion. Later, terms which are synonyms for locations on the ship can be introduced one at a time.

The teacher should have students spread out within the confines of the imaginary space ship to start the game. The instructor shouts out commands such as "Go to the Bow", "Skip to the Stern", "Hop to the Starboard", etc. The students must move to that part of the ship using the appropriate locomotor patterns as quickly as possible.

Rules: Various rules can be implemented:

1. The last child to complete the order in a correct fashion can be eliminated from the game with the winner determined by who is the last player left, or
2. The last child to complete the action in a correct fashion can earn his way back into the game by doing some additional task, e.g. jog around the space ship, do 20 jumping jacks, jump rope 100 times, etc.

Helpful Hints: To make this game extremely exciting and, at the same time, develop agility, the teacher should call out the direction while the group is still in the process of trying to get to the location that was just announced. When this strategy is implemented for three or four commands in a row, it creates a very fast-paced game which doesn't work against the child who is slower in their actions. In fact, it makes the faster player have to work even harder, especially if the opposite direction is changed midstream, e.g. fore, followed by aft. The faster the runners will be closer to the front of the ship at the time the teacher yells out, "Go to the Stern" and thus, these players will need to use all of their speed to try to hustle toward the back of the ship to avoid being the last one to arrive. Since the instructor will change the direction in midstream only a few consecutive times before stating a command where players will need to actually move to that portion of the ship, students will not be able to out-guess your strategy.

HUMAN ANAGRAMS

Brief Description

This game requires students to spell out answers to questions regarding rules, terminology, history, strategy, etc. involved in sports or any knowledge area pertaining to Health and Physical Education. It provides an excellent medium through which information can be reviewed and is a superb rainy day activity. If teachers desire to increase the amount of physical activity which participants are required to perform, suggested modifications are provided in the Helpful Hints section.

Grade Level

Human Anagrams is appropriate for grades 5-college. The complexity of the words which must be spelled will obviously need to be geared to the cognitive development of the participants.

Equipment

Two to 4 sets of the letters of the alphabet which have been drawn with magic marker on cardboard rectangles (8" X 12") must be constructed. Each team will be given one set of letters. One letter is placed on each piece of cardboard and it is best to print the letters on both sides of the rectangle. The letters should be relatively large and drawn with bold strokes so that they can be easily seen. Old file folders which have been cut in half make excellent, inexpensive and uniform rectangles upon which the letters can be printed. To help distinguish one team's alphabet from another, each set of letters should be drawn in a different colour. The following letters are not used very often and teachers might not want to include them: J, Q, X and Z. To differentiate the letter M from a W, place a line under the letter so that it looks like M and W respectively.

Playing Area

When two teams are competing, Human Anagrams requires an area of approximately 60' (L) X 18' (W) unless one of the modifications is played. Human Anagrams can take place out-of-doors, but since the players will need to be seated at times, a concrete or grassy area is preferred.

Game

Divide the class into at least 2 groups and assign each team a captain. In no case should a team have more than 22 players or fewer than 18 players. With fewer than 18 people on a team, too many players will need to be responsible for 2 letters. This can be a very confusing task even for older individuals. If a student must be in charge of 2 letters, be sure that they are given ones which don't

occur very often in the same word. For example, V,and K, W, and P, C and B or H and F. Never have one student in charge of both a consonant and a vowel.

Double letters can be avoided by purposefully eliminating a few of those which would normally be used. If this strategy is employed, then select the letters which occur infrequently. Good choices would include the F and V or perhaps the K.

Have the captain of each team give 1 letter, or 2 where needed, to each team member. Logic dictates that the vowels and other letters which might be used a great deal should be given to the better spellers.

The configuration of 2 teams is shown below:

TEAM #1 SEATED		TEAM #2 SEATED
A B C D E ... Y		A B C D E ... Y
	TEACHER	
.....CBA	STUDENT STAND HERE TO SPELL THEIR ANSWERS	.....CBA

Players from each team should align themselves in such a manner that their alphabet is spelled out properly from left to right. Thus, when the teacher looks at each group, he/she should be able to read the letters in the order which they typically appear. If a student is assigned 2 letters, that person should seat himself/herself in the spot where the letter which occurs first in the alphabet is positioned. It is not necessary to leave gaps in the line of letters where the missing ones would normally be found.

After the teacher asks a question, the students who have the letters that spell the answer get up, move to the spelling line, and stand in proper order to spell-out the word while holding their letters so that they face their teammates. After the students are in the proper position and have physically spelled the answer, they must shout out their letter in consecutive order so that the word is spelled verbally. Once this is accomplished, the students should then sit down on the spelling line to signal that they are finished.

A point is awarded to the team which gets the answer correctly spelled first and then is seated. Remember, the word must be spelled correctly both physically and verbally for a team to win the round. The team with the greatest number of points is declared the winner.

It is critical for students to realize that when they position themselves to form their answer, they must do so in such a manner that when the rest of their teammates see the word, they will be able to read it as opposed to having the answer spelled backward. This is why the letters which label the spelling lines in Figure 1 appear to be reversed or mirror imaged to the reader. To the imaginary players who would be cheering on their team members, because they would not be involved in the word which is being formed, the answer which is being spelled out would be positioned appropriately.

Sometimes a player will hold his letter upside down or sideways while physically spelling out his portion of the word. This is unacceptable and is treated as an error. Teammates can tell the player to correct the problem, but if the word has been spelled out verbally, it will need to be audibilized again after the correction is made. The easiest way to avoid this difficulty is to encourage players to look over the top of the file folder at their letter to be sure that it is positioned properly.

If players have been assigned two letters occasionally they will display the wrong one for the solution which is currently being formed. Again, this error will need to be corrected in order for a team to have successfully spelled the answer.

If the same letter appears twice in the answer, the student(s) will need to physically move when

spelling out the word. In essence, they will represent a jumping letter. Initially, they should line-up at the position in the word where the letter first appears. Once the student shouts the letter that is positioned first in the word, he/she must move to the spot where his/her letter appears next and say that letter again at the appropriate moment. If 2 letters are given to one person, and the answer demands that both appear, the students should follow the same rules for jumping letters. However, he/she will need to interchange the file folders so that each correct letter is shown in its proper place in the word.

With more than 2 teams, it is best, and almost a necessity, for the teacher to have one student helper assigned to each team. This aide will make certain that the students are positioning themselves correctly and spelling their word properly. If student helpers are used, each should be given a whistle. When a team has spelled the word properly, both physically and verbally the helper should blow the whistle so that the teacher and players realize that the round is over. With student assistants, it is not necessary to have the spellers sit down after they have verbally shouted out their letters. The teacher will need to provide the helpers with a list of answers to the questions which will be posed.

If only 2 teams will be competing, and no student aides are available, after the instructor asks a question, he/she should walk forward to a point which is even with the team members who will not be involved in spelling out the solution, and then turn around. From that vantage point, it should be possible to see and hear the letters which are being spelled.

Helpful Hints

If more physical activity is desired, require that participants do some type of exercise prior to moving to the spelling line. These might include 20 jumping jacks, 10 squat thrusts, 15 sit-ups (provide mats), skip, run or hop to the opposite side of the gym, etc. Another possibility is to leave the letters spread in an orderly fashion across the floor in the gym. If a player's letter is required in the answer, he/she must retrieve his/her letter(s) before returning to the spelling line. The only drawback to these modifications is that a larger playing area is required.

To be certain that all of the letters of the alphabet are used a number of times throughout the activity, the instructor must plan the questions accordingly. Generally this can be accomplished fairly easily by using answers which demand 5 or more different letters. Furthermore, pre-planning will help teachers to realize which pairs of letters would be good to assign to one student if needed.

Be sure to play a few practice rounds which have rather short responses so that students realize what they must accomplish. In these trials include at least 2 examples of words with repeating letters.

If abbreviations or shortened versions of an answer will be accepted, e.g. NY (the periods have been deleted as punctuation marks are not used in Human Anagraphs) for New York or VB for volleyball, then make that clear when introducing the game. Keep in mind that acronyms and abbreviations will result in fewer players being involved at one time. However, the trade off is that more questions would/could be presented in a given activity session. It also helps players to know when a solution calls for two or more words. If such a situation occurs, then inform the teams just prior to stating the question.

TREASURE HUNT*

Small groups walk together to decipher a series of clues that will lead them to a treasure which was hidden prior to the start of the game. Each clue requires that participants collect some naturalistic items which tells players where their next clue can be located. The first team to get to the treasure by solving all of the clues correctly, gets to share the bounty. Consult the Adaptations for Younger Participants section when Treasure Hunt is used with second, third and fourth graders.

Objectives: Qualities depend upon the activities which instructors specified in the clues. Enhance cardio-respiratory endurance and/or speed relative to the distance players traverse between clues. Reinforce logical thought processes, word manipulation, spelling, identification of materials within a naturalistic setting, math and group cohesion.

Equipment: For each group: two pencils, four to six sheets of paper and a like number of envelopes which are marked with the Clue # and the team's name on the outside, e.g. Red #1, one set of clues, and two sheets of scratch paper. Note, if the clues do not require extensive deciphering, the scratch paper and pencils may be optional. The treasure can consist of anything the leader desires.

Playing Area: Any large space(s) where participants can be supervised; however, it is best to play outdoor where players will be able to move freely from one place to another.

Participants: Each group consists of five to eight members. The maximum of number of teams than can play at the same time is one less than the number of clues used in the Treasure Hunt. At least one recreational specialist is needed, but it is preferable if at least one assistant is available. These individuals hide the clues, supervise the activity, offer hints if groups are stymied and determine if the clues have been properly decoded.

Game: Clues are cryptic messages which are devised ahead of time and placed in envelopes with the clue # and the team name printed on the outside. These are then placed in the appropriate areas with the exception of the first clue for each team which is handed to the captain. If desired, the clue can be hidden so that players must search in a general location or can be placed in a rather prominent spot. In the latter instance, the activity processes more quickly with greater emphasis on deciphering the message, completing the required actions and moving from location to location.

Clue codes are the key to this event. There are many standard forms and examples of these that have been identified below. If the clue read, "Get ten acorns and go to the canoe rack," the type of code and actual message would appear as follows.

/A/ Mixed–Up Spelling, but the Words are in Proper Order:

TEG NET CONASR DAN OG OT ETH NACEO KRAC

/A/ Mixed–Up Words

CANOE ACORNS GO TO THE RACK AND GET TEN

/A/ Alphabet Represented by Numbers 1 = A, 2 = B, 3 = C ... 26 = Z

7-5-20 20-5-14 1-3-15-18-14-19 1-14-4 7-15 20-15 20-8-5 3-1-14-15-5 18-1-3-11

(Note: Dashes between numbers differentiate one letter from the next.)

/A/ Alphabet Represented by Numbers 26 = A, 25 = B, 24 = C ... 1 = Z

20-22-6 6-22-13 26-24-12-8-13-7 26-13-23 20-12 6-15 6-19-22

24-26-13-12-22 8-26-24-16

/A/ Vowels Represented by Numbers 1 = A, 2 = E, 3 = I, 4 = O, 5 = U, 6 = Y

G2T T2N 1C4RNS 1ND G4 T4 TH2 C1n43 R1CK

/A/ Use of Math to Determine Number Words in the Clue

GET (FIGURE MATH BELOW) ACORNS AND GO TO THE CANOE RACK

The number of degrees on a compass
Divided by the number of stars which make up the ladle of the Big Dipper
Divide by the number of seasons in a year
Minus the eggs in a dozen
Minus the number of cups which 4 ounces represents

/A/ Adding Extraneous Repetitive Letters (e.g. OP)

GOP- EOP-TOP TOP-EOP-NOP AOP-COP-OOP-ROP–NOP-SOP

AOP-NOP-DOP- GOP-OOP TOP-OOP TOP-HOP-EOP

COP-AOP-NOP-OOP-EOP ROP-AOP-COP-KOP

Any combination of these types of clues is possible. Normally, between five and eight different clues are used for each game. The last clue must be the same for all teams as it leads them to the treasure. All of the clues are identical for each group; however, the order in which the teams complete their solutions is different. Table 1 presents a sequence of seven clues for team five.

Clue # 1 is handed to each team to begin the Treasure Hunt. Clue A for the Red Team directs them to a particular area where the Red Team's second clue (Clue B) is hidden. When Clue B is deciphered, it instructs the Red Team players to go to a specific area to find Clue C, which represents the Red Team's third clue etc.

The clues are ordered consecutively from each team regardless of where it directs the team to move. This means that Clue A = Clue #1 for the Red Team. Clue C = Clue #1 for the Blue Team. Clue B = Clue #2 for the Red Team. Clue D = Clue #2 for the Blue Team etc. The numbering of the clues along with the team's name on the outside of the envelope is done to be sure that the groups solve their clues in a specific order.

It helps to write the place where you physically want to hide the teams's clue under the flap of the envelope so you, or an assistant, don't get confused. For example, if Red Clue #1 (handed) deciphered to "Two push--ups each then go to the tennis net," you would have to hide Red Clue #2 at the tennis net. Thus, under the flap of Red Clue #2's envelope, you would indicate "Tennis Net" since that is where you would hide that envelope. Following this logic, say that Red Clue #2 decoded to "Jog around the tennis courts four times, then go to the bleachers." Red Clue #3 would be placed in the bleachers and under this envelope's flap would appear the word "Bleachers". In other words, YOU HIDE THE NEXT CLUE WHERE THE PREVIOUS CLUE DIRECTS THE TEAM TO GO. This is CRUCIAL, for if the sequence is not correct, some team, or perhaps all of the teams will not be able to complete their Treasure Hunt.

Additional Rules

- The clue must be deciphered and the directions completed before a team can go to the next clue.
- All clues must be completed in the proper sequence, #1, #2, #3, etc.
- The first team to find the treasure, or a promissory note for one, is the winner, provided they have correctly deciphered each of the clues. Once a team finds the treasure, they must not disturb it, but must give the instructor the clue sheets to verify that the messages have been properly decoded and any objects which were to be collected have been done so properly.
- If a team has worked for 3 minutes to decipher a clue and still does realize what must be done to break the code, the supervisor is allowed to provide a hint. However, a maximum of four hints per team is permitted during the entire activity.
- Other teams' clues may not be disturbed.
- A team can't begin to work on a clue until all of its members have arrived at the site where the clue is hidden.
- A team caught violating any of the rules is penalized at the discretion of the leader.

Safety Considerations: As a whole, no unusual safety concerns result from participation in this activity; however, the actions which players must complete might require that certain warnings be given.

Helpful Hints: To keep the activity level as continuous as possible, hide the clues in such a manner that once the players arrive at the proper location, they don't have to spend a great deal of time searching for the envelope. Be sure that the team's name and clue number is visible so other teams' clues will not be taken by mistake.
The first time this game is conducted, limit the number of clues to four, even if there will be two teams using the same sequence for their clues. Once you can successfully set-up a Treasure Hunt on a small scale, you will understand the pattern which must be followed to permit the game to run smoothly. For a better conditioning effect, try to use a sequence where participants will need to traverse relatively long distances between the spots where the clues are hidden. If the activity specialist or the assistant keeps track of the elapsed time between when the first and the second teams find the treasure, then should the first team have committed an error in deciphering, they can be given that specific amount of time, the number of minutes between the first and second team completing its Treasure Hunt, to solve the problem. If the members of the first team can't correct

the difficulty in this allotted period, and the second team's clues have been appropriately decoded, the second team would be declared the winners. Thus, it is important for the instructor to stress that the decoded clue must be written in the proper form on the equal clue sheets which have been placed in the envelopes. This will allow checking of the solutions to occur very quickly.

Adaptations for Younger Participants: For younger children who have only limited reading and abstract thinking capabilities, it is possible to eliminate the need for deciphering by simply writing in simplistic terms what is to be completed and where the group will find the next clue. A further modification can be employed by cutting out or drawing a picture of the activity that the participants will perform at each station. Likewise, a snapshot or hand drawn picture can be placed in the envelope to let the members know where they will have to travel to locate their next clue. Fifth graders do not require any special modifications, but only relatively simple codes should be employed.

*This game was adapted from an activity used at Camps Kenwood Evergreen, Potter Place, N.H.

Table 1
Ordering of Seven Clues For Five Teams

Clue #	#1	#2	#3	#4	#5	#6	#7
Team Name							
Red	A	B	C	D	E	F	G
Blue	B	C	D	E	F	A	G
Green	C	D	E	F	A	B	G
Orange	D	E	F	A	B	C	G
White	E	F	A	B	C	D	G

BUCKET BRIGADE

Brief Description

The objective of this activity is to be the first team to fill a large trash can with styrofoam pellets so that it overflows. Filling is accomplished by passing containers "fire brigade style" from person to person along a line.

Grade Level

This activity is appropriate for all age levels. The only modification which might be required for younger students is that a smaller garbage can and smaller buckets be used.

Equipment

Four 20-50 gallon trash cans and an ample supply of styrofoam pellets are required. These pellets are often used by manufacturers for protecting fragile materials during shipping. Check with some of the local businesses in your community. You might be able to secure a donation or, at the very least, get the name and address of a supplier. When these pellets are not being used for Bucket Brigade, they store very easily in large plastic bags which are used to dispose of lawn and leaf clippings.

Approximately half to two-thirds of the participants on each team should have one #5 tin can, coffee can or similar sized plastic container. If metal cans are used, be sure that there are no sharp edges on the part where the top has been removed. It is not necessary to have all of the tin cans the same size; however, each of the teams must have an identical set of containers so that one group is not given an unfair advantage.

Playing Area

Any indoor or outdoor area which provides at least 30 yards of space between the trash can which is to be filled, and the one which is already filled is ideal. If adequate space is a problem, team members do not have to be spread out in a straight line as described later in this activity. If the game is played outside, be sure that it is not excessively windy.

Players

Each team should consist of no more than 40 players. If there are enough students for more than 2 teams, any number can be accommodated provided that there is an adequate supply of equipment.

Game

After students are divided in half or in thirds, they must form a line between the source of Styrofoam pellets and the empty trash can which they will be trying to fill. There should be a distance of at least 3 feet between participants on a team. Thus, if a team consists of 40 players, the line between its two trash cans will be about 120' long. With such a large group, it is more preferable to set-up the line in a "U" shaped or "S" shaped configuration. This placement will reduce the amount of physical space which the activity requires and provide the teacher with an easier formation from which to explain the game and maintain class control. Cones or traffic pylons might be necessary to keep the students in their proper alignment.

Rules

All empty containers must start at the end of the line where the styrofoam pellet source is located. The student who is closest to this source serves as a dipper and starts to fill the tin cans when the signal to begin is given. A second individual may serve as another dipper. Two dippers are recommended when this activity is used in grades K-4.

Once 1 or 2 of the tin cans are filled, they are passed up the line "fire brigade" style and dumped into the empty trash can. After the cans are emptied, they are sent back to the dipper by passing them from person to person on the team. Every person must touch each tin can which is either going up the line to be emptied, or down the line to be filled. If this rule is violated, one can is taken away from the team which is at fault for approximately one minute. The process of filling and emptying the containers continues until the trash can from one of the teams is overflowing.

If more physical activity is desired, then an alternative movement pattern can be used. Instead of the cans being passed down the line to the dipper, after the person empties his/her container of pellets

into the trash can, he/she runs with the can back to the dipper to have the container refilled. This action pattern is one that should be used with younger students, as it is far less complicated and one which they would be more familiar with than the up-and-down the line movement described earlier. Once the tin can is restocked, this person passes the container up the line. However, as people continue to empty their receptacles and join the back of their group, they will begin to move closer to the trash can which is being filled. Thus, there is a constant circling of the players on each team with the exception of the dipper(s). This variation is best used when the teams are spread out in straight lines rather than in a "U" or an "S" shaped formation. If one of these other configurations must be used and the more active version of the game is to be played, then the teacher should place a cone or traffic pylon a set distance away from the trash can which is being filled to designate where students must run before returning the container to the dipper.

Helpful Hints

As the activity progresses, extra pellets will need to be emptied into the trash can near the dipper. This is required because it might be difficult to fill the tin can when more than half of this trash can has been emptied. Additionally, some spillage will occur even if students exercise care.

This game takes on a special air of excitement when water is substituted for the styrofoam pellets. If water is used, the game must be played out-of-doors when weather permits. Some splashing will occur regardless of how careful the participants are. While it would be advisable for students to remove their shoes and socks, this might not be possible because of safety concerns. Much of the spillage can be avoided if the equipment is altered to include smaller trash cans, medicine cups, and plastic cups or plastic glasses in lieu of the tin cans. If these suggestions are implemented, removal of footgear would not be necessary.

When using a hose to supply the water, a teacher will need to fill the containers designated as the water source before the activity begins. Periodically, during the activity, add water to the trash cans which are being emptied. When only one teacher is present, set your teams up in a "U" shape so that you can monitor the teams filling the trash can, as well as be in charge of the hose.

If an existing water source is available such as a pond, creek or pool, then have the students spread out in straight lines. Be certain that when you set the empty trash cans in place, that they are on a level surface. If they are positioned on different inclines, one group of students will be at a disadvantage.

Another material which can be used to fill the containers is sand. Some schools have outdoor play equipment which has been anchored in a bed of sand, or they might even posses a sandbox. If this medium is used, be sure to set the teams up in such a manner that it will be easy to return the sand to its original location. Another option is that once the trash can has been filled, require that it be emptied bucket by bucket to the place from where the sand was taken, before a winner is declared.

Students seem to enjoy this activity regardless of the size of the equipment which is used. If large industrial sized garbage cans are utilized, an excellent place to find them is in your school cafeteria or occasionally in the school hallways.

OH DEER!

OBJECTIVES: Students will be able to: 1) identify and describe food, water, and shelter as three essential components of habitat; (2) describe the importance of good habitat for animals; (3) define "limiting factors" and give examples; and (4) recognize that some fluctuations in wildlife populations are natural as ecological systems undergo a constant change.

METHOD: Students become "deer" and components of habitat in a highly-involved physical activity.

BACKGROUND: A variety of factors affects the ability of wildlife to successfully reproduce and to maintain their populations over time. Disease, predator/prey relationships, varying impacts of weather conditions from season to season (e.g. early freezing, heavy snows, flooding, drought), accidents, environmental pollution, and habitat destruction and degradation are among these factors.

Some naturally-caused as well as culturally-induced limiting factors serve to prevent wildlife populations from reproducing in numbers greater than their habitat can support. An excess of such limiting factors, however, leads to threatening, endangering, and eliminating whole species of animals.

The most fundamental of life's necessities for any animal are food, water, shelter, and space in a suitable arrangement. Without these essential components, animasl cannot survive.
The activity is designed for students to learn that:

a) good habitat is the key to wildlife survival;
b) a population will continue to increase in size until some limiting factors are imposed;
c) limiting factors contribute to fluctuations in wildlife populations; and
d) nature is never in "balance," but is constantly changing.

Wildlife populations are not static. They continuously fluctuate in response to a variety of stimulating and limiting factors. We tend to speak of limiting factors as applying to a single species, although on factor may affect many species. Natural limiting factors, or those modeled after factors in natural systems, tend to maintain populations of species at levels within predictable ranges. This kind of "balance in nature" is not static, but is more like a teeter-totter than a balance. Some species fluctuate or cycle annually. Quail, for example, may start with a population of 100 pairs in early spring; grow to a population of 1200 birds by late spring; and decline slowly to a winter population of 100 pairs again. This cycle appears to be almost totally controlled by the habitat components of food, water, shelter, and space, which are also limited factors. Habitat components are the most fundamental and thereby the most critical of limiting factors in most natural settings.

This activity is intended to be a simple but powerful way for students to grasp some basic concepts: that everything in natural systems is interrelated; that populations of organisms are continuously affected by elements of their environment; and that populations of animals do not stay at the same static number year after year in their environment, but rather are continually changing in process of maintaining dynamic equilibria in natural systems. The major purpose of this activity is for students to understand the importance of suitable habitat as well as factors that may affect wildlife populations in constantly changing ecosystems.

MATERIALS area - either indoors or outdoors - large enough for students to run; e.g. playing field; chalkboard or flip chart; writing materials

Age: Grades 4 - 12

Subjects: Science, Math, Social Studies, Physical Education

Skills: application, comparing similarities and differences, description, discussion, generalization, graphing, kinaesthetic concept development, observation, psychomotor development

Duration: 30 - 45 minutes

Group Size: 15 and larger recommended

Setting: indoors or outdoors; large area for running needed

Conceptual Framework Reference: I.C.2., III.B., III.B.2., III.B.3., III.B.5., III.C., III.C.1., III.C.2., III.E., III.E.1., III.E.2., III.F., III.F.1., III.F.2., III.F.3., III.F.4., III.F.5., IV.C., IV.C.1., IV.C.2.

Key Vocabulary: habitat, limited factors, predator, prey, population, balance of nature, ecosystem

PROCEDURE

1. Begin by telling students that they are about to participate in an activity that emphasizes the most essential things that animals need in order to survive. Review the essential components of habitat with the students: food, water, shelter, and space in a suitable arrangement. This activity emphasises three of those habitat components - food, water, and shelter - but the students should not forget the importance of the animals having sufficient space in which to live, and that all the components have to be in a suitable arrangement or the animals will die.

2. Ask your students to count off in four's. Have all the one's go to one area. Mark two parallel lines on the ground or floor ten to 20 yards apart. Have the one's line up behind the other line; the rest of the students line up behind the other line.

3. The one's become "deer" All deer need good habitat in order to survive. Ask the students what the essential components of habitat are again: **food, water, shelter,** and **space in a suitable arrangement.** For the purposes of this activity, we will assume that the deer have enough space in which to live. We are emphasizing food, water, and shelter. The deer (the one's) need to find food, water, and shelter in order to survive. When a deer is looking for **food,** it should clamp its hands over its stomach. When it is looking for **water,** it puts its hands over its mouth. When it is looking for **shelter,** it holds its hands over its head. A deer can choose to look for any of its needs during each round segment of the activity; **the deer cannot, however, change what it is looking for;** e.g. when it sees what is available, **during that round. It can change again what it is looking for in the next round, if it survives.**

4. The two's, three's, and four's are food, water, and shelter - components of habitat. Each student gets to choose at the beginning of each round which component he or she will be during that round. The students depict which component they are in the same way the deer show what they are looking for; that is, hands on stomach for food, etc.

5. The game starts with all players lined up on their respective lines (deer on one side; habitat components on the other side) - **and with their backs to the students at the other line.**

6. The facilitator or teacher begins the first round by asking all of the students to make their signs - each deer deciding what it is looking for, each habitat component deciding what it is. Give the students a few moments to get their hands in place - over stomachs, mouths, or over their heads. (As you look at the two lines of students, you will normally see a lot of variety - with some students water, some food, some shelter. As the game proceeds, sometimes the students confer with each other and all make the same sign. That's okay, although don't encourage it. For example, all the students in habitat might decide to be shelter. That could represent a drought year with no available food or water.)

7. When you can see that the students are ready, count; "One...Two...Three..." At the count of each three, each deer and each habitat component turn to face the opposite group continuing to hold their signs clearly.

8. When deer see the habitat component they need, they are to run to it. Each deer must hold the sign of what it is looking for until getting to the habitat component person with the same sign. Each deer that reaches its necessary habitat component takes the "food," "water," or "shelter" back to the deer side of the line. This is to represent the deer successfully meeting its needs and successfully reproducing as a result. Any deer that fails to find its food, water or shelter dies and becomes part of the habitat. That is, in the next round, the deer that died is a habitat component and so is available for food, water, or shelter to the deer who are still alive.

NOTE: When more than one deer reaches a habitat component, the student who gets there first survives. Habitat components stay in place on their line until a deer needs them. If no deer needs a particular habitat component during a round, the habitat component just stays where it is in the habitat. The habitat person can, however, change which component it is from round to round.

9. You as the facilitator or teacher keep track of how many deer there are at the beginning of the game, and at the end of each round you record the number of deer also. Continue the game for approximately 15 rounds. Keep the pace brisk, and the students will thoroughly enjoy it.

10. At the end of the 15 rounds, gather the students together to discuss the activity. Encourage them to talk about what they experienced and saw. For example, they saw a small herd of deer (seven students in a class of 28) begin by finding more than enough of its habitat needs. The population of deer expanded over two to three rounds of the game, until the habitat was depleted and there was not sufficient food, water, and shelter for all the members of the herd. At that point, the deer starved and died of thirst or lack of shelter, and they returned as part of the habitat. Such things happen in nature also.

11. Using a flip chart pad or an available chalkboard, post the data recorded during the game. The number of deer at the beginning of the game and at the end of each round represent the number of deer in a series of years. That is, the beginning of the game is year one, each round is an additional year. Deer can be posted by five's for convenience. For example

:

> The students will see this visual reminder of what they experienced during the game: the deer population fluctuated over a period of years. This is a natural process, as long as the factors which limit the population do not become excessive, to the point where the animals cannot successfully reproduce. The wildlife populations tend to peak, decline, and rebuild, peak, decline, and rebuild - as long as there is good habitat and sufficient numbers of animals to successfully reproduce.

12. In discussion, ask the students to summarize some of the things they have learned from this activity. What do animals need to survive? What are some of the "limiting factors" that affect their survival? Are wildlife populations static, or do they tend to fluctuate, as part of an overall "balance of nature?" Is nature ever really in "balance," or are ecological systems involved in a process of constant change?

MUSKOX MANEUVERS

OBJECTIVES Students will be able to: 1) evaluate the effectiveness of some adaptations in predator/prey relationships; and 2) describe the importance of predator/prey relationships as limiting factors in wildlife populations.

METHOD Students simulate muskoxen and wolves in a highly involving game of physical activity.

BACKGROUND The muskox is a large, shaggy herbivore called "omingmak" or "the bearded one" by the Eskimos, or Inuit (ee-new-eet), as they prefer to be called. A male muskox may weigh over 600 pounds at maturity, and mature females about 350 pounds. A young muskox may weigh only 19 pounds at birth. These animals are inhabitants of the arctic regions of Alaska, Greenland, and Canada.

Muskoxen often are found in herds of 20 to 30. Both sexes will vigorously defend the young, usually forming a line or circle around them, facing the threatening predator. Such a circle renders the animals relatively safe against natural predators, particularly wolves.

In this activity, the roles of bulls and cows are differentiated in ways not typical of actual muskoxen. Again both sexes vigorously defend the young.

The major purpose of this activity is for students to recognize adaptation and limiting factors in a predator/prey relationship.

NOTE: This activity was inspired by a "New Game," and adapted to teach concepts related to wildlife. Although this activity does not illustrate all the complexities of predator/prey relationships, it does illustrate broad concepts.

MATERIALS: two different colours of rag "flags" twelve of one colour, three of another

PROCEDURE:

NOTE: The following procedures will be based on a group size of 33 students. The activity will work with as few as 15 students, and the group size can be increased to approximately 50. Simply adjust the categories of muskoxen proportionately (approximately four times as many of both calves and cows as wolves; two times as many both calves and cows as bulls; e.g. four calves, four cows, two bulls, one wolf).

1. This is a highly involving activity! It is best done outdoors, in an open, grassy area; however, it is possible to do the activity indoors - even in a classroom - if tables, chairs, and desks can be moved in order to create a large space in which students can do some moving, including "tag-like" running.

2. Once you have established an appropriate physical area for the activity, divide your group of 33 students into four groups, consisting of three wolves, six bulls, 12 cows, and 12 calves. Each will have a distinctive role. Provide each calf with a long, brightly-coloured rag "flag". The flag should be affixed to the calf's body in a way that it could - if it were within reach - be removed by a wolf. Back pockets are ideal! Each wolf should also have a rag "flag" - of a different colour than those worn by calves. The wolves should also wear their flags in a secure but accessible manner.

3. The activity provides students with an opportunity to experience adaptation behavior of both muskoxen and wolves. Muskoxen, herbivores, often graze peacefully in meadowed areas. While grazing, they spread out. Calves typically do not stray too far from their mothers, but the animals do not always stay clustered...except when predators appear! Begin the activity with the students grazing peacefully as muskoxen, and the wolves out of sight of the herd.

4. These are the behaviors each animal should exhibit:

Cows: As soon as grazing begins, the cows should choose a lead cow to watch for predators. The cows should pick a signal the lead cow will use to communicate to the rest of the herd that predators are approaching. When the lead cow signals that predators are near, all the cows move to form a circle around the calves to protect the calves from the wolves. With the calves in the center of a circle, the cows stand with their backs to the calves, facing outward to watch the wolves. The cows can move very little. Mostly, they stay firmly in one place, moving their upper bodies to block the wolves from reaching the calves. The cows cannot touch the wolves with their hands or feet.

Calves: The calves depend totally upon the cows for protection. Each calf is to hold onto a cow with both hands, around the cow's waist, and only follow the cow's lead. Calves cannot influence the cow's movement. **Bulls:** The bulls are the active defenders of the cows and the calves. As the predators near, the bulls form a circle around the cows, who in turn are forming a circle around the calves. The bulls form as tight a circle as they can around the cows and the calves, never any farther than one step in front of the circle of cows. The bulls can move, however - but only in clockwise direction around the circle of the cows! The bulls do have use of their hands. As the wolves attack the herd, the bulls try to "kill" them by pulling the flag out of their back pocket, or wherever the flag is attached to the wolf. When a bull kills a wolf, the wolf moves off to the side, "dead", but able to watch the remainder of the activity.

Wolves: Wolves begin the activity out of sight of the herd. They try to get as close as possible to the herd without being detected. Wolves typically work as a unit, so they can attempt a strategy for surprising the herd in order to kill the calves for food. The wolves are mobile, able to move at any time in any direction. They can use any manoeuvre (except pushing and shoving) to break the herd's defenses. Once a wolf kills a calf -by pulling the calf's flag out of its pocket - temporarily stop the game and move the calf's carcass aside, where it too can watch the remainder of the activity!

A Note About Sound Effects: This is not a quiet game much of the time. Wolves should be howling, communicating with each other in predetermined ways with signals, and as part of their tactics to startle and confuse the muskoxen. The muskoxen moo loudly.

5. **Muskoxen Maneuvers in Review:**

a) Muskox herd grazes quietly. Wolves are out of sight of herd.

b) Wolves move in to attack herd.

When the lead cow spots wolves, the herd begins defense. A circle is formed, with calves in the center, cows facing out in a circle around the calves, and bulls in an outer circle also facing the wolves. Each should behave appropriately, as described above.

6. The activity can conclude in several ways. For example:

a) All the wolves could be killed.

b) All the calves could be killed.

c) The wolves could give up in frustration after a period of time with no success in killing a calf.

d) The wolves could kill one or more calves, and the activity conclude at this time, based on the notion that the wolves are going to eat the calf (calves) and the herd move on.

7. Once the excitement and enthusiasm have peaked - sit down with the students to discuss what happened, and what the activity represents in terms of animal adaptation, predator/prey relationships, and limiting factors. Ask the students to describe and evaluate the predatory behavior of the wolves, and the various defense behaviors of the muskoxen... What would happen if the wolves could not get into the herd? What would happen if the wolves always got into the herd. Ask the students to distinguish between what would be actual, typical behaviors of muskoxen contrasted with their behaviors in this activity.

EXTENSIONS

1. A few students can research and report back to the class with more details about the life and times of muskoxen and wolves - acquiring additional information about their survival needs, habitat, and behaviors.
2. Investigate predatory and defense behaviors of different species in different habitats. For example, selected species of plains, forest, desert, and ocean animals can be compared.
3. Plan a class and parent picnic. Let it be a potluck - with an after dinner activity, "Muskox Maneuvers". It could be good exercise, good fun, and a worthwhile sharing of teaching and learning!

EVALUATION

Name a pray species and its predator species. Describe how each is adapted to the other . How does the pray protect itself? How does the predator overcome this protection? Describe the overall effectiveness of each animal's adaptation.

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